

Long-Term Trends in Cigarette-Smoking Initiation

Another type of birth cohort analysis was conducted to determine long-term trends in smoking among young adults (20–29 years of age) by gender and educational attainment. Information on smoking history was determined during the years that each person was 20–29 years of age. For each year, the prevalence of smoking was determined by dividing the number of smokers aged 20–29 years by the total number of persons aged 20–29 years in that year. Unlike the birth cohort analysis described in the preceding section of this chapter, in this analysis the group for which prevalences are computed changes from year to year because new respondents enter the group when they are 20 years old and leave it when they become 30 years old.

The information for African Americans was obtained from NHIS data collected in 1978, 1979, 1980, 1987, and 1988, whereas the information for Hispanics was obtained from HHANES data collected in 1982–1984.

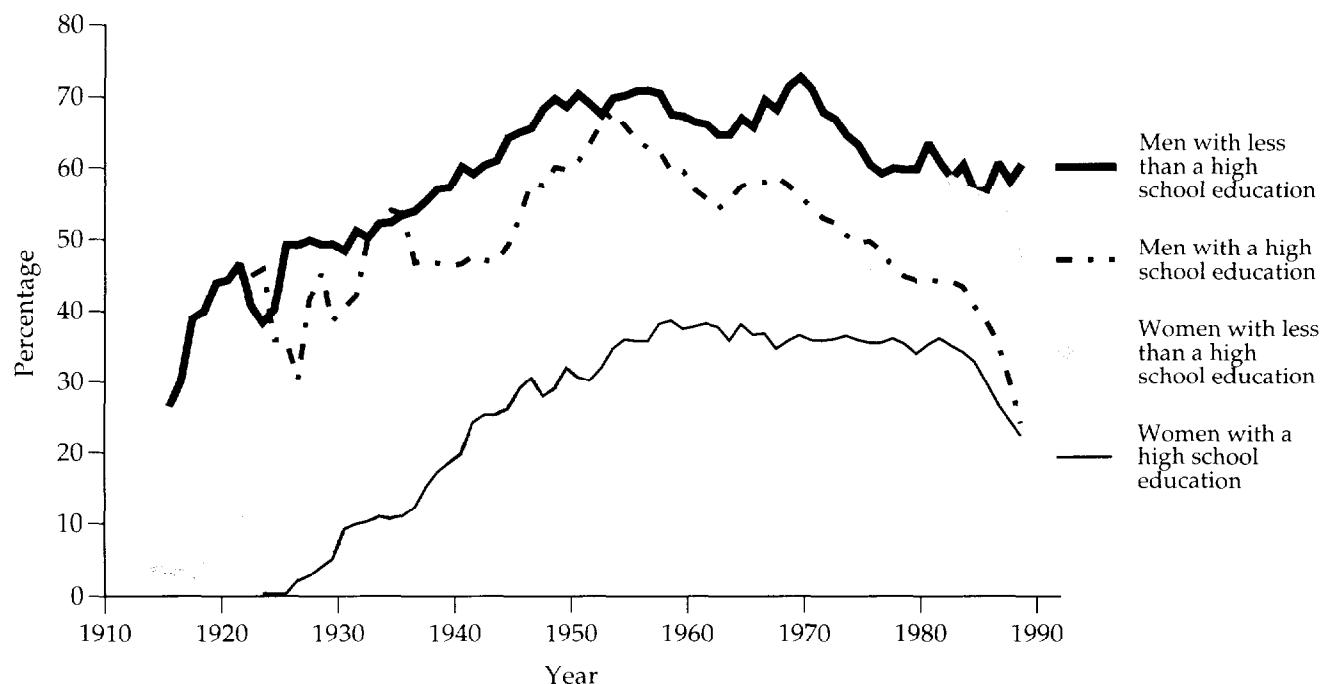
African Americans

Up until the early 1970s, African American men had substantially higher rates of smoking initiation than African American women (Figure 11). Within each gender group, significant education-related differences were not observed until the 1950s, when rates of smoking initiation among male high school graduates began to decline sharply and rates among females with less than a high school education began to increase. Rates among less educated females surged dramatically between 1970 and 1980. After 1980, rates of smoking have consistently declined among each of these subgroups of African Americans except males with less than a high school education.

Hispanics

Significant education-related differences in rates of smoking initiation have been evident only among Hispanic males. Around 1940, Hispanic males who graduated from high school began showing

Figure 11. Reconstructed prevalence of smoking among African American adults aged 20–29 years, by gender and education, National Health Interview Surveys, United States, 1910–1988



Source: National Center for Health Statistics, public use data tapes, 1978, 1979, 1980, 1987, and 1988 combined.

appreciably lower smoking rates than Hispanic males with less than a high school education (Figure 12). These differences increased in the 1960s and even more rapidly in the mid-1970s. No consistent differences in smoking rates by education were observed among Hispanic females.

Cigarette Brand Preferences

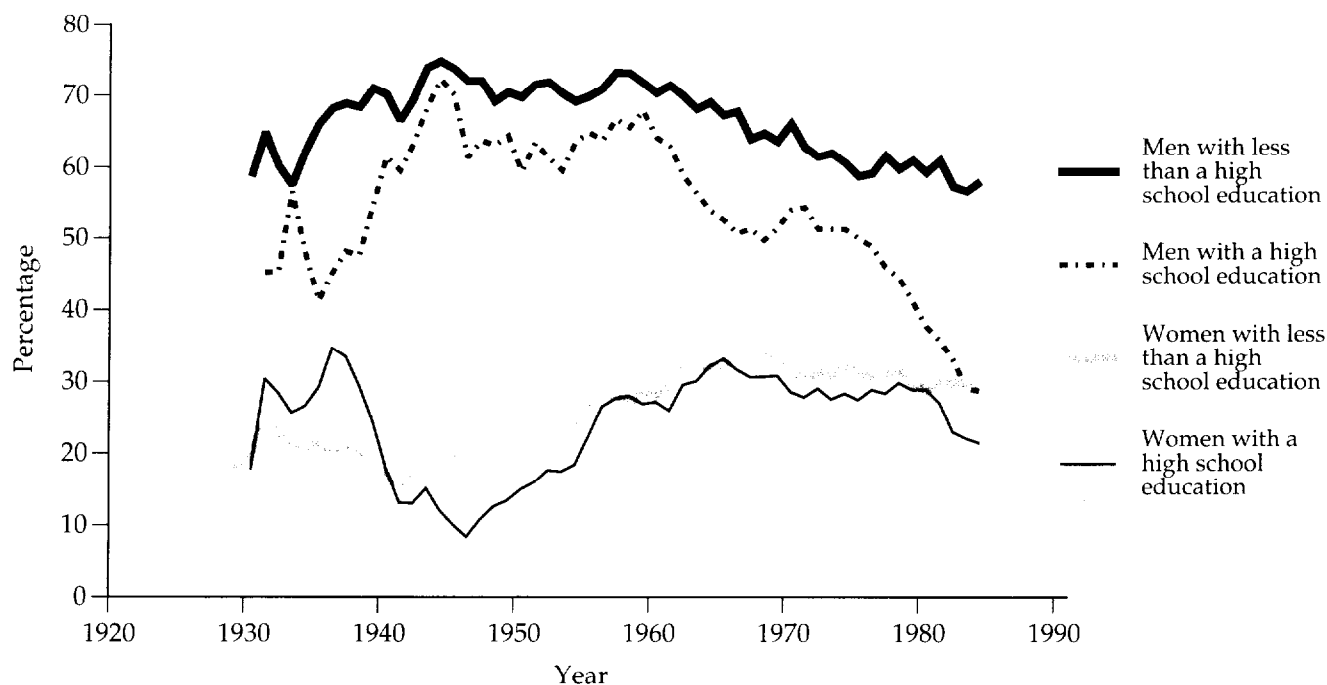
Knowing what influences cigarette brand preference among smokers is believed to be important because this information can be used to develop counteradvertising strategies. In the late 1970s and the 1980s, the 12 most commonly used brands of cigarettes—Marlboro, Winston, Salem, Kool, Pall Mall, Kent, Benson & Hedges, Camel, Merit, Vantage, Virginia Slims, and Newport—were used by at least 76 percent of all current U.S. smokers, according to data from the 1986 Adult Use of Tobacco Survey (AUTS) and the 1978–1980 and 1987 NHISs (Table 32). Brand use varied somewhat by race/ethnicity. For example, the top brands

preferred by African Americans were Kool, Newport, Salem, and Winston, whereas whites preferred Marlboro, Winston, Salem, and Benson & Hedges.

These differences in part reflect the greater use of mentholated cigarettes by African Americans (Cummings et al. 1987; USDHHS 1989). Fifty-five percent of all African American smokers reported using one of three brands that were available only in mentholated form (Newport, Kool, and Salem). Similar patterns and percentages of brand preferences were observed in the 1987 NHIS (Table 32).

Hymowitz and colleagues (1995) recently studied menthol cigarette smoking among adults who participated in a stop-smoking study. Among African Americans who smoked menthol cigarettes ($n = 174$), the top reasons given for smoking menthols were as follows: 83 percent said that menthol cigarettes tasted better than nonmenthol cigarettes, 63 percent said that they had always smoked menthol cigarettes, 52 percent said that menthol cigarettes were less harsh to the throat than nonmenthol cigarettes, 48 percent found inhalation to be easier with menthol cigarettes, and 33

Figure 12. Reconstructed prevalence of smoking among Hispanic adults aged 20–29 years, by gender and education, Hispanic Health and Nutrition Examination Surveys, 1920–1984



Source: National Center for Health Statistics, public use data tapes, 1982–1984.

Table 32. Percentage of self-reported cigarette brand use among adult current cigarette smokers, overall and by race/ethnicity and gender, National Health Interview Surveys (NHIS) 1978–1980 combined, Adult Use of Tobacco Survey (AUTS) 1986, and NHIS 1987

Survey	Sample Size*	Benson & Hedges		Camel		Kent		Kool		Marlboro	
		%	±CI†	%	±CI	%	±CI	%	±CI	%	±CI
NHIS 1978–1980											
African Americans											
Total	1,540	6.0	1.6	1.3	0.7	1.6	0.6	28.0	4.0	3.8	1.3
Men	750	4.0	1.7	2.3	1.2	1.1	0.8	31.3	4.7	4.2	1.7
Women	790	8.1	2.4	0.3	0.4	2.2	0.8	24.4	4.5	3.3	1.6
Whites											
Total	13,228	4.2	0.6	4.4	0.5	4.8	0.5	6.3	0.6	17.5	1.1
Men	6,675	2.7	0.5	6.9	0.7	4.0	0.6	6.8	0.8	20.3	1.5
Women	6,553	5.8	0.8	1.7	0.4	5.7	0.6	5.8	0.7	14.4	1.2
AUTS 1986											
African Americans											
Total	388	9.2	3.5	0.9	1.2	0.6	0.6	19.9	4.9	6.7	3.1
Men	176	4.6	3.8	1.2	2.0	0.5	0.5	19.6	7.2	10.2	5.5
Women	212	13.8	5.7	0.5	1.2	0.7	0.7	20.3	6.7	3.2	2.9
Whites											
Total	3,693	4.1	0.8	4.9	0.9	2.7	2.7	4.2	0.8	28.3	1.8
Men	1,883	2.9	0.9	7.9	1.5	2.3	2.3	4.7	1.2	32.4	2.6
Women	1,810	5.5	1.3	1.5	0.7	3.2	3.2	3.5	1.0	23.7	2.4
NHIS 1987											
African Americans											
Total	428	6.3	2.7	2.6	2.0	2.5	2.3	24.8	5.4	2.7	1.5
Men	174	2.2	1.8	3.4	3.3	2.1	2.8	30.3	8.6	3.1	2.2
Women	254	11.2	5.1	1.7	2.2	3.0	3.7	18.4	5.5	2.3	1.9
Whites											
Total	1,860	5.8	1.2	3.8	1.1	3.1	0.9	3.7	1.0	31.1	2.6
Men	934	3.8	1.4	5.7	1.6	2.1	1.0	3.6	1.3	38.8	3.5
Women	926	8.1	2.1	1.6	1.7	4.3	1.6	3.7	1.4	22.0	3.1

*Unweighted sample size.

†In the NHIS, "other" includes other brands, no particular brand, and roll-your-own cigarettes; in the AUTS, "other" includes other brands.

percent said that they could inhale menthol cigarettes more deeply. Among a small sample (n = 39) of whites who smoked menthol cigarettes, 74 percent said that menthol cigarettes tasted better than nonmenthol cigarettes, 51 percent said that menthol cigarettes were more soothing to the throat, 39 percent said that they had

always smoked menthol cigarettes, and 21 percent found inhalation to be easier with menthol cigarettes.

Evaluating changes in young smokers' brand preferences is especially important because it can help identify factors that influence their choices and may suggest ways to discourage them from starting

Merit		Newport		Pall Mall		Salem		Vantage		Virginia Slims		Winston		Other [†]	
%	±CI	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
1.4	0.6	5.2	2.3	6.9	1.5	15.9	2.0	0.9	0.5	2.6	0.9	11.9	2.1	14.5	2.0
1.3	0.9	5.6	2.7	9.6	2.5	12.7	2.8	0.7	0.2	0.2	0.3	13.4	3.3	13.6	2.5
1.4	0.9	4.7	2.8	4.0	1.3	19.4	2.7	1.1	0.8	5.2	1.9	10.3	2.1	15.6	3.2
4.3	0.4	1.2	0.4	5.4	0.4	9.0	0.7	3.5	0.4	2.2	0.3	13.3	0.9	23.9	1.1
4.0	0.6	1.2	0.4	6.4	0.6	7.9	0.8	3.5	0.6	0.2	0.1	15.5	1.2	20.6	1.4
4.7	0.6	1.2	0.4	4.2	0.5	10.3	1.0	3.5	0.5	4.4	0.5	10.8	1.0	27.5	1.4
0.1	0.4	23.4	5.2	2.3	1.8	17.4	4.6	0.4	0.8	3.4	2.2	6.5	3.0	9.4	3.6
0.0	0.0	26.2	8.0	2.8	3.0	15.2	6.5	0.5	1.3	0.3	1.0	8.8	5.1	10.2	5.5
0.1	0.5	20.5	6.7	1.8	2.2	19.7	6.6	0.4	1.0	6.4	4.0	4.2	3.3	8.5	4.6
4.9	0.9	2.4	0.6	3.5	0.7	8.2	1.1	3.6	0.7	3.0	0.7	11.0	1.2	19.2	1.6
4.6	1.2	2.7	0.9	3.9	1.1	6.4	1.4	3.5	1.0	0.4	0.4	13.0	1.9	15.4	2.0
5.3	1.3	2.1	0.8	2.9	0.9	10.4	1.7	3.8	1.1	6.0	1.3	8.8	1.6	23.6	2.4
1.3	1.1	19.6	5.7	2.2	1.2	12.7	3.8	0.5	0.5	1.9	1.2	11.7	4.0	11.2	3.5
0.8	1.2	21.9	9.1	2.1	1.6	11.9	5.4	0.0	0.0	0.5	0.8	12.9	6.3	8.8	4.4
1.9	2.0	16.9	5.3	2.3	1.7	13.5	4.7	1.0	1.2	3.4	2.4	10.3	4.8	14.1	5.0
4.5	1.0	2.8	0.9	2.5	0.8	7.0	1.4	2.6	0.8	3.8	0.9	12.3	1.9	17.0	1.9
4.1	1.4	2.5	1.2	3.2	1.2	5.4	1.9	2.8	1.0	0.1	0.2	13.6	2.7	14.3	2.5
4.9	1.3	3.2	1.3	1.5	0.8	8.9	2.1	2.4	1.1	8.2	2.0	10.7	2.6	20.5	2.8

[†]95% confidence interval.

Sources: National Center for Health Statistics, public use data tapes, 1978–1980 and 1987; Centers for Disease Control, public use data tapes, 1986.

to smoke (Hunter et al. 1986; Pierce et al. 1991a). Data from the 1989 TAPS show that among adolescents who usually bought their own cigarettes (61.9 percent), Marlboro was the most popular brand among whites (71.4 percent) and Hispanics (60.9 percent), and the mentholated brands of Newport (61.3 percent), Kool

(10.9 percent), and Salem (9.7 percent) were preferred by African Americans (Table 33) (CDC 1992d). In the 1993 TAPS, the most popular brands were still Marlboro among whites (63.5 percent) and Hispanics (45.4 percent) and Newport among African Americans (70.4 percent) (Table 33).

Table 33. Percentage of self-reported cigarette brand use among adolescent current cigarette smokers,* by race/ethnicity, Teenage Attitudes and Practices Surveys (TAPs), 1989 and 1993

Survey	Sample Size [†]	Benson & Hedges		Camel		Kool		Marlboro		Merit		Newport	
		%	±CI [‡]	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
TAPS 1989													
Race													
African American	41	3.3	6.4	3.1	6.2	10.9	9.1	8.7	9.7	0.0	0.0	61.3	15.7
White	807	1.3	1.2	8.4	2.2	0.6	0.5	71.4	3.4	0.5	0.5	5.6	1.6
Ethnicity													
Hispanic	46	3.7	4.9	7.6	8.6	5.8	6.1	60.9	15.0	0.0	0.0	12.8	9.5
Non-Hispanic	817	1.3	1.2	8.1	2.1	0.8	0.6	69.1	3.5	0.5	0.5	8.0	1.9
TAPS-II 1993													
Race													
African American	41	1.7	3.3	0.0	0.0	11.9	10.9	8.5	8.5	§	§	70.4	14.1
White	646	0.2	0.4	14.4	3.1	0.5	0.8	63.5	4.3	NA	NA	8.7	2.4
Ethnicity													
Hispanic	50	0.0	0.0	10.1	7.7	4.5	8.6	45.4	14.9	NA	NA	34.0	15.1
Non-Hispanic	647	0.3	0.4	13.6	3.1	0.9	0.8	60.9	4.3	NA	NA	11.0	2.5
Survey	Sample Size [†]	Salem		Vantage		Virginia Slims		Winston		Other			
		%	±CI	%	±CI	%	±CI	%	±CI	%	±CI		
TAPS 1989													
Race													
African American	41	9.7	7.2	0.0	0.0	NA	NA	0.0	0.0	2.9	5.8		
White	807	1.0	0.7	0.1	0.2	NA	NA	3.4	1.3	7.6	2.0		
Ethnicity													
Hispanic	46	2.8	5.4	0.0	0.0	NA	NA	0.0	0.0	6.5	7.6		
Non-Hispanic	817	1.5	0.8	0.1	0.2	NA	NA	3.3	1.3	7.3	1.9		
TAPS-II 1993													
Race													
African American	41	1.4	2.7	NA	NA	0.5	1.0	0.0	0.0	5.5	6.0		
White	646	1.0	0.8	NA	NA	1.0	1.0	1.2	0.1	9.4	2.8		
Ethnicity													
Hispanic	50	0.0	0.0	NA	NA	0.0	0.0	6.0	8.1	0.0	0.0		
Non-Hispanic	647	1.1	0.8	NA	NA	1.1	1.0	0.8	0.7	10.4	2.9		

*Current smokers are adolescents aged 12–18 years who reported smoking cigarettes on 1 or more of the 30 days preceding the survey.

[†]Unweighted sample size.

[‡]95% confidence interval.

§Numbers are too small for meaningful analysis; this brand is included in the "other" category.

NA = data not available.

Sources: National Center for Health Statistics, public use data tapes, 1989; Centers for Disease Control and Prevention, public use data tapes, 1993.

A notable change in brand preferences occurred between 1989 and 1993, however. The percentage of adolescents purchasing Marlboro cigarettes decreased 13 percent, whereas the percentage of those purchasing Camel cigarettes increased 64 percent and the percentage of those purchasing Newport cigarettes increased 55 percent (CDC 1994a). The declining preference for Marlboro cigarettes was greatest among Hispanics (CDC 1992d). Increases in brand preference were greatest among white adolescents who preferred Camel cigarettes and among Hispanic adolescents who preferred Newport cigarettes. In 1993, the brands of cigarettes most commonly smoked among a small

sample of Vietnamese middle and high school students in Worcester, Massachusetts, were Marlboro (71.0 percent) and Camel (9.7 percent) (Wiecha 1996).

Data from the 1989 and 1993 TAPs indicate that brand preference is more concentrated among adolescents than among adults. In both surveys, the three most popular brands for each racial/ethnic group were purchased by at least 80 percent of adolescent smokers. Both surveys identified very small numbers of smokers among African American adolescents (41 in 1989 and 45 in 1993) and Hispanic adolescents (46 in 1989 and 50 in 1993); thus, brand preference estimates for these groups are imprecise.

Effects of Education and Race/Ethnicity on Cigarette-Smoking Behavior

In this chapter, smoking prevalence has been shown to vary by racial/ethnic minority group and by educational attainment. Because educational attainment varies among racial/ethnic groups and is related to smoking prevalence, the question arises as to whether racial/ethnic differences in smoking can be explained by differences in educational attainment.

A previous analysis of the 1985 NHIS data showed that controlling for selected measures of socioeconomic status, such as employment status and poverty level, reduced differences in the smoking prevalence between African Americans and whites (Novotny et al. 1988).

Although education, together with such variables as income and occupation, is often used to create a composite measure of socioeconomic status, many researchers have used education as a single proxy indicator of socioeconomic status because education is often associated with many lifestyle characteristics (Liberatos et al. 1988). In addition, education data are usually more accurate and easier to collect than income and occupation data (Liberatos et al. 1988).

Findings in this report indicate that the prevalences of cigarette smoking, smoking cessation, and heavy smoking are all associated with race/ethnicity and educational attainment. Because racial/ethnic group and educational attainment are often interrelated, multivariable models were used in this analysis to distinguish how each variable influences smoking behavior. Data were derived from the NHIS

for 1987, 1988, 1990, and 1991 (Table 34) (NCHS, public use data tapes, 1987, 1988, 1990, and 1991). The multivariable logistic regression technique was used to assess the odds ratios of smoking behaviors for African Americans, American Indians and Alaska Natives, Asian Americans and Pacific Islanders, and Hispanics compared with whites, before and after adjusting for the effects of educational attainment.¹ Four separate logistic regression models were constructed for different measures of smoking behavior: current smoking, ever smoking, heavy smoking (among current smokers), and smoking cessation (among ever smokers). Four design variables were created to represent the racial/ethnic groups (African Americans, American Indians and Alaska Natives, Asian Americans and Pacific Islanders, and Hispanics), with whites serving as the reference group. Similarly, two design

¹ Let β_{i0} = logistic regression coefficient for the i th ethnicity group *before* education was included, and β_{i1} = logistic regression coefficient for the i th ethnicity group *after* education was included. Then $\beta_{i0} - \beta_{i1}$ measures education's confounding effect on the relationship between smoking and ethnicity. The variance of $\beta_{i0} - \beta_{i1}$ can be approximated as $\text{var}(\beta_{i0}) + \text{var}(\beta_{i1})$; and the standard error, $\text{SE}(\beta_{i0} - \beta_{i1})$, is the square root of the variance. In terms of the more commonly used measure, odds ratio (OR), the following relationship exists: $\text{OR}_{i0}/\text{OR}_{i1} = \exp(\beta_{i0} - \beta_{i1})$. The 95 percent confidence interval for $\text{OR}_{i0}/\text{OR}_{i1}$ can then be computed as $\exp[(\beta_{i0} - \beta_{i1}) \pm 1.96 \times \text{SE}(\beta_{i0} - \beta_{i1})]$. Education's confounding effect on the relationship between smoking and ethnicity is determined to be statistically significant if the 95 percent confidence interval for $\text{OR}_{i0}/\text{OR}_{i1}$ does not include 1.0.

Table 34. Relationship between smoking status and race/ethnicity among adults,* before and after controlling for education,† National Health Interview Surveys, United States, 1987, 1988, 1990, and 1991 aggregate data

Smoking status	Race/ethnicity	Not controlling for education		Controlling for education		Effect of education‡	
		OR ₀ †	CI§	OR ₁	CI	OR ₀ /OR ₁	CI
Current ^Δ	African Americans	1.11	1.06, 1.16	0.96	0.91, 1.00	1.16	1.08, 1.24
	Hispanics	0.74	0.70, 0.79	0.58	0.54, 0.62	1.29	1.18, 1.42
	Asian Americans and Pacific Islanders	0.51	0.45, 0.58	0.54	0.47, 0.62	0.94	0.78, 1.14
	American Indians and Alaska Natives	1.46	1.16, 1.85	1.20	0.95, 1.51	1.22	0.88, 1.70
	Whites	1.0	referent	1.0	referent	1.0	referent
Former [¶]	African Americans	0.65	0.61, 0.70	0.74	0.69, 0.78	0.89	0.81, 0.97
	Hispanics	0.97	0.90, 1.05	1.16	1.07, 1.26	0.84	0.75, 0.94
	Asian Americans and Pacific Islanders	0.95	0.80, 1.13	0.88	0.74, 1.05	1.08	0.85, 1.38
	American Indians and Alaska Natives	0.66	0.47, 0.92	0.74	0.53, 1.02	0.89	0.56, 1.41
	Whites	1.0	referent	1.0	referent	1.0	referent
Heavy ^{**}	African Americans	0.19	0.16, 0.21	0.18	0.16, 0.20	1.04	0.87, 1.25
	Hispanics	0.25	0.21, 0.30	0.23	0.20, 0.28	1.08	0.84, 1.38
	Asian Americans and Pacific Islanders	0.17	0.11, 0.26	0.17	0.11, 0.27	0.97	0.52, 1.83
	American Indians and Alaska Natives	0.74	0.58, 0.95	0.70	0.55, 0.90	1.05	0.74, 1.49
	Whites	1.0	referent	1.0	referent	1.0	referent
Ever ^{††}	African Americans	0.82	0.79, 0.86	0.76	0.72, 0.79	1.09	1.02, 1.16
	Hispanics	0.63	0.60, 0.67	0.55	0.52, 0.58	1.15	1.06, 1.24
	Asian Americans and Pacific Islanders	0.39	0.35, 0.43	0.40	0.36, 0.44	0.97	0.83, 1.13
	American Indians and Alaska Natives	1.21	1.05, 1.40	1.09	0.93, 1.27	1.11	0.90, 1.38
	Whites	1.0	referent	1.0	referent	1.0	referent

*Includes persons aged 25 years and older.

†Education was evaluated at three levels: less than high school education, high school education, and at least some college.

‡OR₀ = odds ratio not controlling for education; OR₁ = odds ratio controlling for education. Odds ratios were calculated as follows: $OR_{i0}/OR_{i1} = \exp(\beta_{i0} - \beta_{i1})$, where β_{i0} is the logistic regression coefficient for the *i*th ethnic group before controlling for education, and β_{i1} is the coefficient after controlling for education. Other variables in the logistic models include age, gender, marital status, geographic region, and year of survey.

§95% confidence interval.

ΔCurrent cigarette smokers are persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked. The association presented is for current smoking compared with former and never smoking.

¶Former smokers are those who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they were not smoking cigarettes. The association presented is for former smoking compared with current smoking.

**Heavy smokers include current smokers who reported at the time of survey that they were smoking 25 or more cigarettes per day. The association presented is for heavy smoking compared with current smoking of 1–24 cigarettes per day.

††Ever smokers are those who reported at the time of survey that they had smoked at least 100 cigarettes in their lives, regardless of their current smoking status. The association presented is for ever smoking compared with never smoking.

Sources: National Center for Health Statistics, public use data tapes, 1987, 1988, 1990, and 1991; Escobedo et al. 1995.

variables were created to represent persons with and without a high school education, with persons having at least some college education serving as the reference group. In addition to including race/ethnicity and education, the logistic regression models included the year of the survey, age, gender, marital status, and geographic region.

Education was first omitted from and then entered in these models. The difference in estimated coefficients before and after the inclusion of education was computed for each of the four design variables representing the different racial/ethnic groups. The variance of this difference was estimated to be the sum of the variances of the two coefficients. The 95 percent confidence interval of the difference was computed by using this variance estimate. The difference in coefficients was translated into the ratio of the odds ratios before and after adjusting for education (Table 34) (Escobedo et al. 1995).

Current Smoking

Before adjustment for education, the data indicated that African Americans as well as American Indians and Alaska Natives were more likely than whites to be current smokers (Table 34). Hispanics as well as Asian Americans and Pacific Islanders were substantially less likely than whites to be current smokers. After adjustment for the confounding effects of education, the odds ratios for current smoking among African Americans and Hispanics decreased significantly (Table 34).

Thus, when the data were adjusted for education, current smoking among African Americans did not differ from whites—an indication that the differences in the unadjusted rates were probably attributable to factors related to differences in educational attainment. For Hispanics, current smoking was lower than for whites, and adjustment for the confounding effects of education further accentuated these differences.

Smoking Cessation

African Americans as well as American Indians and Alaska Natives who had ever smoked were substantially less likely than whites to have quit smoking (Table 34). When education was included in these models, the odds ratio for smoking cessation increased, suggesting that lack of education accounts for some but not all of the low rates of quitting in these two groups. Before adjustment for education, the data showed that Hispanics were as likely as whites to quit

smoking. However, after adjustment for education, the data showed that Hispanics were more likely than whites to quit smoking. Thus, the unadjusted smoking cessation rate was lower among both African Americans and Hispanics than among whites partially because of confounding by educational attainment. A similar magnitude of change was observed among American Indians and Alaska Natives, but this difference was not statistically significant. Educational attainment does not explain why African Americans are less likely than whites to quit smoking.

Heavy Smoking

Members of all four racial/ethnic groups were less likely than whites to be heavy smokers, before and after the data were adjusted for the effects of education (Table 34). These differences were greatest between whites and Asian Americans and Pacific Islanders and were smallest between whites and American Indians and Alaska Natives. Because the odds ratio of heavy smoking changed little after adjustment for education, the differences in heavy smoking between racial/ethnic groups appear to be independent of factors associated with educational attainment.

Ever Smoking

Before the data were adjusted for the effects of education, all racial/ethnic groups except American Indians and Alaska Natives were substantially less likely than whites to have ever smoked (Table 34). After adjustment for education, the odds ratios for ever smoking among African Americans and Hispanics declined even further, and these declines were statistically significant. This finding suggests that if African Americans and Hispanics had socioeconomic status more comparable with that of whites, they would be even less likely ever to smoke than whites.

Differences in current smoking, quitting, and ever smoking between whites and Asian Americans and Pacific Islanders also were found. Asian Americans and Pacific Islanders were less likely than whites to be current smokers, substantially less likely to be ever smokers, but also slightly less likely to have quit smoking. After adjustment for education, the odds ratios associated with these smoking behaviors changed little (Table 34). Thus, the lower smoking prevalences among Asian Americans and Pacific Islanders may be related to factors other than education—presumably cultural factors associated with being an Asian American or a Pacific Islander in the United States.

Occasional Smoking

In addition to smoking more cigarettes each day, whites who currently smoke are generally more likely than members of other racial/ethnic groups to smoke on a daily basis. According to the 1993, 1994, and 1995 combined NHISs, 15.2 percent of whites who smoked were occasional (i.e., nondaily) smokers, compared with 26.0 percent of African Americans, 22.2 percent of American Indians and Alaska Natives, 33.1 percent of Asian Americans and Pacific Islanders, and 35.5 percent of Hispanics. Only the estimate for American Indians and Alaska Natives did not differ significantly from that for whites (data not shown) (NCHS, public use data tapes, 1993, 1994, 1995). Husten and

colleagues (1998) used data from the 1991 NHIS to study persons who had ever smoked 100 lifetime cigarettes but who had never smoked on a daily basis. Among the ever smokers, African Americans (12.0 percent), American Indians and Alaska Natives (15.0 percent), Asian Americans and Pacific Islanders (12.1 percent), and Hispanics (16.8 percent) were all significantly more likely than whites (6.2 percent) never to have smoked daily. In gender-specific multivariate analyses that controlled for income, age, and education, African Americans, Hispanics, and others (American Indians and Alaska Natives combined with Asian Americans and Pacific Islanders) were significantly more likely never to have smoked daily.

Exposure to Environmental Tobacco Smoke

Data on exposure to environmental tobacco smoke (ETS) among members of U.S. racial/ethnic minority groups are extremely limited. In the 1991–1993 NHIS, nearly one-third of all respondents indicated exposure to ETS at home three or more days per week (Table 35) (NCHS, public use data tapes, 1991–1993). African Americans (37.6 percent) and American Indians and Alaska Natives (36.9 percent) were more likely than other groups to report such levels of exposure to ETS at home. These findings are consistent with smoking prevalence data presented earlier in this chapter. Similar patterns exist among nonsmokers, although the occurrence of higher levels of exposure (three or more days) is reduced by 40 to 60 percent among nonsmokers compared with the total population. Among Asian American, Pacific Islander, American Indian, and Alaska Native nonsmokers, women had substantially more prolonged exposure than men.

Using 1988–1991 NHANES III data on persons aged 17 years and older who did not use tobacco, Pirkle and colleagues (1996) found that 36.9 percent of African Americans, 35.1 percent of Mexican Americans, and 37.4 percent of whites reported that they were exposed to ETS either at home or at work. Wagenknecht and colleagues (1993) analyzed data collected in 1985 and 1986 from 3,300 persons aged 18–30 years who were recruited in four urban centers (Birmingham, Chicago, Minneapolis, and Oakland). African Americans were more likely than whites to report home exposure to ETS and to report that they spent time mostly with smokers. Using 1988 NHIS data on

the number of smokers in the home, Overpeck and Moss (1991) estimated that 42.4 percent of U.S. children aged five years and younger were living in a household with a smoker. In 1988, African American children were more likely to be living with a smoker (51.3 percent) than were white children (41.6 percent), and non-Hispanic children (43.2 percent) were more likely to be doing so than were Hispanic children (35.8 percent).

In recent years, small-scale studies have reported on potential exposure to ETS among young people in U.S. racial/ethnic groups. For example, in two rural Alaska villages, an analysis of saliva samples from children in the Alaska Native Head Start program showed that 44 percent of the children (3–6 years of age) had cotinine concentrations indicative of exposure to ETS (Etzel et al. 1992). Recent research has compared levels of cotinine (a metabolite of nicotine) in biological fluids and hair of children, young adults, and adults (Pattishall et al. 1985; Wagenknecht et al. 1993; Crawford et al. 1994; Knight et al. 1996; Pirkle et al. 1996). Most of these investigations (Pattishall et al. 1985; Crawford et al. 1994; Knight et al. 1996; Pirkle et al. 1996) reported that African Americans who did not use tobacco had higher cotinine levels than whites, even after ETS exposure and other factors were taken into account. Further factors, including possible racial differences in nicotine absorption and metabolism (Pattishall et al. 1985; Benowitz et al. 1995; Clark et al. 1996; Knight et al. 1996) and measurement issues, need to be considered (see Racial/Ethnic Differences in Nicotine Metabolites in Chapter 3 for further discussion of this topic).

Table 35. Percentage of all adults and nonsmokers who reported levels of exposure to environmental tobacco smoke in the home, by race/ethnicity and gender, National Health Interview Surveys, United States, 1991–1993 aggregate data

United States, 1991-1995 aggregate data												
Home exposure*	African Americans		Asian Americans/ Pacific Islanders		American Indians/ Alaska Natives		Hispanics		Whites		Total (%) [‡]	
	%	±CI [†]	%	±CI	%	±CI	%	±CI	%	±CI		
All adults												
0-2 days												
Total	60.8	1.3	78.5	2.8	60.9	4.5	74.4	1.7	66.9	0.6	67.1	
Men	57.3	2.0	76.7	3.7	67.3	6.4	72.6	2.3	66.1	0.7	66.1	
Women	63.5	1.5	80.4	3.9	54.9	5.6	76.0	2.1	67.5	0.7	68.0	
>3 days												
Total	37.6	0.7	20.5	2.9	36.9	4.4	24.5	1.6	31.9	0.6	31.7	
Men	41.1	2.0	21.9	3.7	30.8	6.1	26.3	2.2	32.7	0.7	32.7	
Women	34.8	1.5	19.0	3.8	42.7	5.9	22.7	2.1	31.3	0.7	30.8	
Nonsmokers												
0-2 days												
Total	80.4	1.3	87.6	2.5	84.6	4.5	86.6	1.4	85.7	0.5	85.3	
Men	80.1	2.1	92.0	2.8	90.0	4.9	87.2	2.0	85.2	0.7	85.1	
Women	80.6	1.5	84.0	3.7	78.8	7.0	86.1	1.9	86.2	0.6	85.4	
>3 days												
Total	18.3	1.2	11.7	2.5	13.5	4.3	12.6	1.4	13.5	0.5	13.9	
Men	18.6	2.0	7.0	2.7	9.5	4.8	12.0	1.9	14.0	0.7	14.0	
Women	15.1	1.5	15.5	3.6	17.8	6.4	13.0	2.0	13.1	0.6	13.8	

*Home exposure was the average number of days per week that anyone was inside the home, as reported by respondents answering “yes” to the question, “Does anyone smoke cigarettes, cigars, or pipes anywhere inside this home?” However, these percentages include persons who indicated no exposure. Percentages exclude “don’t know” and “not ascertained” responses regarding the number of days; therefore, the sum may not total 100%.

[†]95% confidence interval.

[‡]Total includes persons of other, unknown, or multiple ethnicities and unknown Hispanic origin.

Source: National Center for Health Statistics, public use data tapes, 1991–1993.

Comparisons Between Racial/Ethnic Minority Groups in Current Tobacco Use

Cigarette Smoking

The most recent data from the 1994 and 1995 combined NHISs show that the age-adjusted prevalence of current cigarette smoking was highest among American Indians and Alaska Natives (36.0 percent), intermediate among African Americans (26.5 percent) and whites (26.4 percent), and lowest among Hispanics (18.0 percent) and Asian Americans and Pacific Islanders (14.2 percent) (Table 36) (NCHS, public use

data tapes, 1994–1995). Among all racial/ethnic groups except American Indians and Alaska Natives, men had significantly higher rates of cigarette smoking than women. Using data from the NCI Supplement of the 1992–1993 CPS, Shopland and colleagues (1996) reported patterns similar to those seen in the NHIS for African Americans, Asian Americans and Pacific Islanders, Hispanics, and whites (data on American Indians and Alaska Natives were not included in their report). From 1978 through 1995, the age-adjusted

prevalence of smoking declined for African Americans, Asian Americans and Pacific Islanders, and Hispanics—overall and for both men and women (Figures 13–15) (NCHS, public use data tapes, 1978–1995). A different picture emerges for American Indians and Alaska Natives. Although a fairly substantial decline

in prevalence was observed, particularly among men, for American Indians and Alaska Natives from 1978–1980 to 1983–1985, prevalence did not change overall or for men from 1983–1985 to 1994–1995 or for women from 1978–1980 to 1994–1995.

Table 36. Age-adjusted prevalence of current cigarette smoking* among adults, overall and by race/ethnicity and gender, National Health Interview Surveys, United States, 1994 and 1995 aggregate data

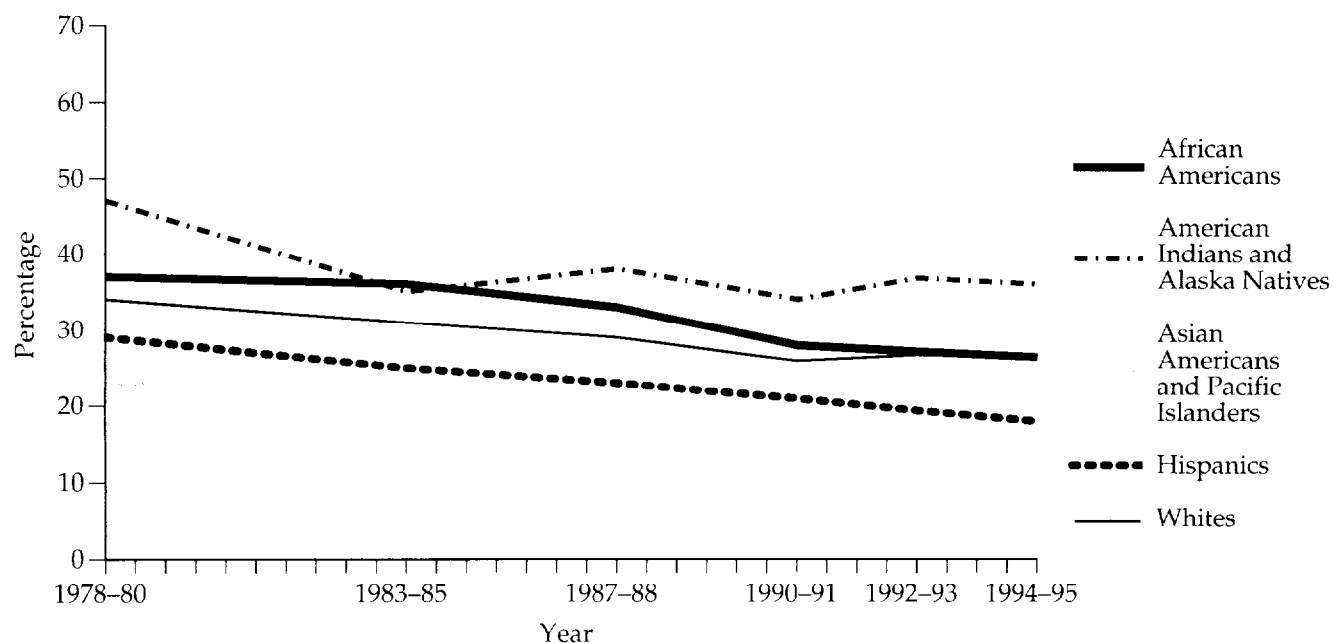
Characteristic	African Americans		American Indians/ Alaska Natives		Asian Americans/ Pacific Islanders		Hispanics		Whites	
	%	±CI [†]	%	±CI	%	±CI	%	±CI	%	±CI
Total	26.5	1.7	36.0	6.0	14.2	2.7	18.0	1.5	26.4	0.7
Men	31.4	2.6	39.3	9.5	23.8	5.1	21.7	2.3	28.1	1.0
Women	22.2	1.8	32.9	8.0	5.4	2.1	14.6	1.8	25.0	0.9

*Current cigarette smokers are persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked every day or on some days. Data were age-adjusted to the 1990 U.S. census population.

[†]95% confidence interval.

Source: National Center for Health Statistics, public use data tapes, 1994–1995.

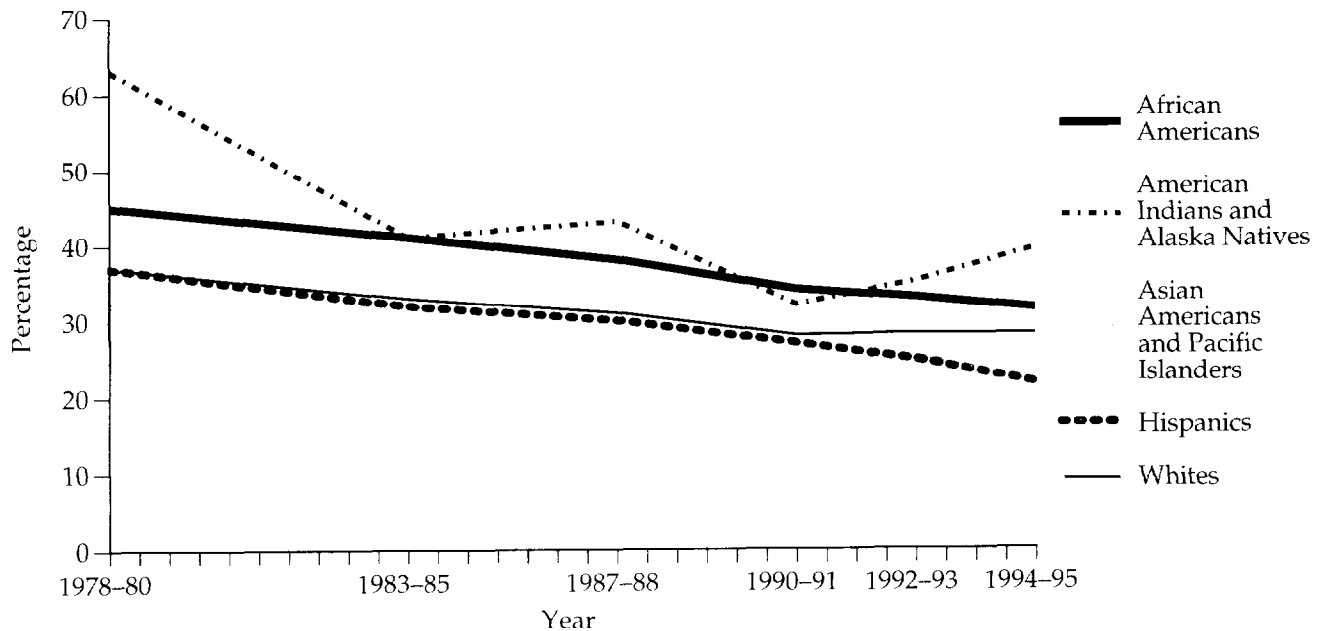
Figure 13. Trends in the age-adjusted prevalence of current cigarette smoking among African American, American Indian and Alaska Native, Asian American and Pacific Islander, Hispanic, and white adults, National Health Interview Surveys, United States, 1978–1995 aggregate data



Note: Data were age-adjusted to the 1990 U.S. census population.

Source: National Center for Health Statistics, public use data tapes, 1978–1995.

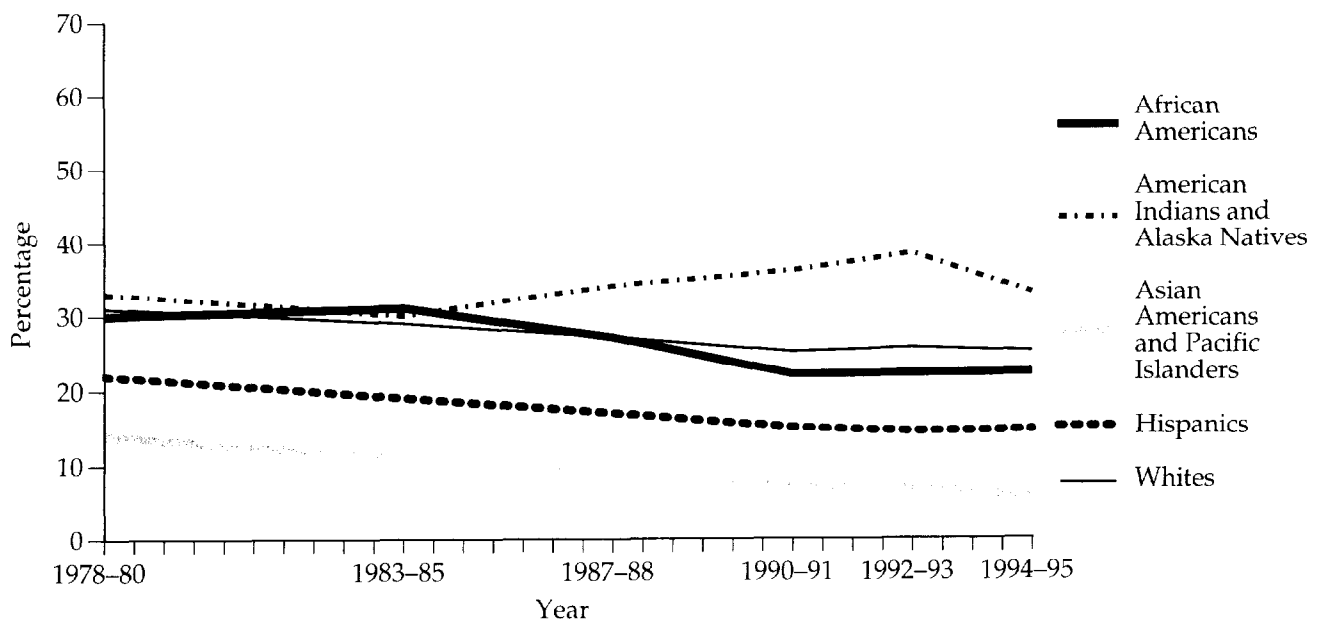
Figure 14. Trends in the age-adjusted prevalence of current cigarette smoking among African American, American Indian and Alaska Native, Asian American and Pacific Islander, Hispanic, and white men, National Health Interview Surveys, United States, 1978–1995 aggregate data



Note: Data were age-adjusted to the 1990 U.S. census population.

Source: National Center for Health Statistics, public use data tapes, 1978–1995.

Figure 15. Trends in the age-adjusted prevalence of current cigarette smoking among African American, American Indian and Alaska Native, Asian American and Pacific Islander, Hispanic, and white women, National Health Interview Surveys, United States, 1978–1995 aggregate data



Note: Data were age-adjusted to the 1990 U.S. census population.

Source: National Center for Health Statistics, public use data tapes, 1978–1995.

Table 37. Cigarette smoking status and number of cigarettes smoked per day† among adults, overall and by race/ethnicity and gender, National Health Interview Surveys, United States, 1987, 1988, 1990, and 1991 aggregate data**

Characteristic	African Americans	American Indians/ Alaska Natives	Asian Americans/ Pacific Islanders
Total			
Never smokers	54.6	41.1	70.6
Former smokers	15.4	21.9	13.4
Current smokers	30.1	37.1	16.0
Cigarettes smoked per day			
<15 cigarettes	59.6	39.7	58.1
15–24 cigarettes	32.4	40.4	35.3
≥25 cigarettes	8.0	19.9	6.5
Men			
Never smokers	44.6	36.1	56.8
Former smokers	19.6	26.0	19.6
Current smokers	35.9	38.0	23.6
Cigarettes smoked per day			
<15 cigarettes	54.1	27.5	56.1
15–24 cigarettes	36.3	49.7	37.8
≥25 cigarettes	9.6	22.8	6.1
Women			
Never smokers	62.6	46.0	85.3
Former smokers	12.0	17.9	6.9
Current smokers	25.4	36.2	7.8
Cigarettes smoked per day			
<15 cigarettes	65.8	52.3	64.6
15–24 cigarettes	27.9	30.9	27.6
≥25 cigarettes	6.3	16.8	7.9

Note: For racial/ethnic-specific data on cigars, pipes, chewing tobacco, snuff, or any form of tobacco, see Table 38.

*Never smokers are those who reported that they had never smoked at least 100 cigarettes; former smokers are those who reported smoking at least 100 cigarettes in their lives but who reported at the time of survey that they did not currently smoke; and current smokers are persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked.

†95% confidence intervals for cigarette smoking status do not exceed $\pm 0.6\%$ for whites, $\pm 1.4\%$ for African Americans, $\pm 3.1\%$ for Asian Americans and Pacific Islanders, $\pm 6.6\%$ for American Indians and Alaska Natives, $\pm 0.5\%$ for all non-Hispanics, $\pm 1.7\%$ for all Hispanics, $\pm 2.3\%$ for Mexican Americans, $\pm 5.2\%$ for Puerto Ricans, $\pm 6.5\%$ for Cuban Americans, $\pm 3.3\%$ for other Hispanics, and $\pm 0.5\%$ for the total population.

Analyses of aggregated NHIS data from the 1987, 1988, 1990, and 1991 surveys indicate differing patterns in the prevalence of current smoking, never smoking, former smoking, and cigarette consumption among members of the four racial/ethnic groups (Table 37) (NCHS, public use data tapes, 1987, 1988, 1990, and 1991). The prevalence of current cigarette smoking was highest among American Indians and Alaska Natives (37.1 percent) and lowest among Asian Americans and

Pacific Islanders (16.0 percent). The prevalence of never smoking cigarettes was highest among Asian Americans and Pacific Islanders (70.6 percent) and lowest among American Indians and Alaska Natives (41.1 percent). Rates of former cigarette smoking were highest among whites (26.0 percent) and lowest among Asian Americans and Pacific Islanders (13.4 percent). Overall, men were more likely than women to be current or former smokers, whereas women were more

Hispanics					Whites	Total [§]
All Hispanics	Cuban Americans	Puerto Ricans	Mexican Americans	Other Hispanics		
60.3	61.9	58.7	61.0	59.3	46.7	49.2
17.2	17.5	16.3	16.8	18.4	26.0	23.8
22.5	20.7	25.0	22.2	22.4	27.3	27.0
61.4	43.3	52.2	68.4	57.9	26.8	33.4
30.0	40.1	36.7	25.7	44.8	32.0	42.3
8.6	16.6	11.1	5.9	10.1	28.3	24.3
49.8	49.6	52.4	48.9	50.6	38.9	40.7
21.6	24.1	19.4	22.1	20.8	32.1	29.6
28.6	26.3	28.3	29.0	28.6	29.1	29.6
58.8	38.5	52.1	65.9	52.4	21.7	29.1
30.9	39.9	31.7	27.2	35.7	42.9	41.2
10.3	21.6	16.2	6.9	11.9	35.4	29.7
69.5	71.1	63.3	72.7	66.5	53.9	56.8
13.4	12.5	14.0	11.7	16.3	20.4	18.6
17.0	16.4	22.7	15.5	17.2	21.7	24.6
65.2	49.2	52.3	72.8	65.9	32.1	38.1
28.8	40.4	41.1	23.2	26.6	46.9	43.5
6.0	10.5	6.6	4.0	17.5	21.1	18.4

[†]95% confidence intervals for the number of cigarettes smoked daily do not exceed $\pm 0.8\%$ for whites, $\pm 2.2\%$ for African Americans, $\pm 9.7\%$ for Asian Americans and Pacific Islanders, $\pm 10.4\%$ for American Indians and Alaska Natives, $\pm 0.9\%$ for all non-Hispanics, $\pm 3.4\%$ for all Hispanics, $\pm 4.7\%$ for Mexican Americans, $\pm 8.6\%$ for Puerto Ricans, $\pm 12.4\%$ for Cuban Americans, $\pm 6.8\%$ for other Hispanics, and $\pm 0.8\%$ for the total population.

[§]Includes persons of other, unknown, or multiple ethnicities and of unknown Hispanic origin.

Source: Centers for Disease Control and Prevention 1994c.

likely than men never to have smoked. Among African Americans, Asian Americans and Pacific Islanders, and all Hispanics except Cuban Americans, the majority of current smokers reported smoking fewer than 15 cigarettes per day, whereas whites, American Indians and Alaska Natives, and Cuban Americans were more likely than others to report smoking 25 or more cigarettes per day. For all groups except Puerto Ricans, women were much more likely than men to report smoking fewer than 15 cigarettes per day.

Pipe and Cigar Use

The prevalence of current pipe or cigar use has been higher among American Indians and Alaska Natives than among other racial/ethnic groups, according to aggregated data from the 1987 and 1991 NHISs (Table 38) (NCHS, public use data tapes, 1987 and 1991). Current pipe or cigar use occurred primarily among men; use was negligible among women of all racial/ethnic groups. The prevalence of cigar or pipe

Table 38. Percentage of adults who reported using cigars, pipes, chewing tobacco, snuff, or any form of tobacco, overall and by race/ethnicity and gender, National Health Interview Surveys, United States, 1987 and 1991 aggregate data*

Characteristic	African Americans	American Indians/ Alaska Natives	Asian Americans/ Pacific Islanders
Cigar smoking[†]			
Total	1.8	2.7	1.1
Men	3.9	5.3	2.2
Women	0.1	0.2	0.1
Pipe smoking[‡]			
Total	1.1	3.5	1.2
Men	2.4	6.9	2.3
Women	0.0	0.0	0.0
Cigar or pipe smoking^{†‡}			
Total	2.5	4.9	1.7
Men	5.6	9.8	3.3
Women	0.1	0.2	0.1
Any tobacco smoking^Δ			
Total	32.6	36.4	16.0
Men	40.2	37.3	24.0
Women	26.5	35.6	7.8
Use of chewing tobacco[§]			
Total	2.0	3.1	0.2
Men	2.7	5.3	0.4
Women	1.5	0.8	0.0
Use of snuff^{**}			
Total	1.4	1.8	0.5
Men	0.9	3.2	0.9
Women	1.9	0.4	0.0
Use of chewing tobacco or snuff^{§**}			
Total	3.0	4.5	0.6
Men	3.1	7.8	1.2
Women	2.9	1.2	0.0
Use of any tobacco product^{††}			
Total	35.2	40.2	16.8
Men	42.4	43.9	25.6
Women	29.3	36.6	7.9

Note: For racial/ethnic-specific data on cigarette smoking, see Table 37.

*95% confidence intervals do not exceed $\pm 0.7\%$ for whites, $\pm 2.1\%$ for African Americans, $\pm 4.0\%$ for Asian Americans and Pacific Islanders, $\pm 9.6\%$ for American Indians and Alaska Natives, $\pm 0.7\%$ for all non-Hispanics, $\pm 2.2\%$ for all Hispanics, $\pm 2.9\%$ for Mexican Americans, $\pm 7.0\%$ for Puerto Ricans, $\pm 8.0\%$ for Cuban Americans, $\pm 3.9\%$ for other Hispanics, and $\pm 0.7\%$ for the total population.

[†]Includes persons who reported they had smoked at least 50 cigars in their lives and who reported at the time of survey that they currently smoked a cigar.

[‡]Includes persons who reported they had smoked a pipe at least 50 times in their lives and who reported at the time of survey that they currently smoked a pipe.

[§]Indicates a value of >0 and <0.05 .

smoking among men was highest among American Indians and Alaska Natives (9.8 percent) and lowest among Puerto Ricans (1.5 percent). Unfortunately, the 1987 and 1991 NHISs did not distinguish between

ceremonial and addictive daily pipe smoking, and this factor may partially account for the high prevalence of pipe smoking among American Indian and Alaska Native men.

Hispanics						
All Hispanics	Cuban Americans	Puerto Ricans	Mexican Americans	Other Hispanics	Whites	Total
1.1	1.0	0.7	0.6	1.9	2.3	2.1
2.1	2.5	1.3	1.5	3.8	4.8	4.4
0.1	0.0	0.1	0.0	0.2	0.1	0.1
0.5	1.1	0.1	0.7	0.8	1.4	1.3
1.0	2.6	0.2	1.5	1.7	2.9	2.7
0.0	0.0	0.0	0.0	0.0	0.1	0.0 ^s
1.3	2.1	0.8	1.2	2.1	3.3	3.0
2.7	5.1	1.5	2.7	4.3	6.7	6.2
0.1	0.0	0.1	0.0	0.2	0.1	0.1
22.7	22.5	22.1	26.8	21.7	29.6	29.1
29.3	30.8	29.4	31.9	27.2	33.2	33.4
16.8	16.9	14.8	23.1	16.9	26.3	25.2
0.4	0.0	0.4	0.1	0.5	2.0	1.8
0.7	0.0	0.8	0.3	1.1	4.1	3.5
0.1	0.0	0.1	0.0	0.1	0.1	0.3
0.5	0.1	0.6	0.3	0.8	1.9	1.7
1.0	0.3	1.0	0.6	1.6	3.8	3.2
0.1	0.0	0.2	0.0	0.0	0.3	0.4
0.8	0.1	0.9	0.3	1.1	3.4	3.1
1.5	0.3	1.5	0.6	2.3	6.8	5.9
0.1	0.0	0.3	0.0	0.1	0.3	0.6
23.4	22.7	22.9	27.4	22.4	32.2	31.5
30.4	31.2	30.7	32.8	28.4	38.0	37.6
17.0	17.0	15.1	23.3	17.1	26.8	26.0

^sIncludes current users of cigarettes, cigars, or pipes.

[¶]Includes persons who reported they had used chewing tobacco at least 20 times in their lives and who reported at the time of survey that they currently chewed tobacco.

^{**}Includes persons who reported they had used snuff at least 20 times in their lives and who reported at the time of survey that they currently used snuff.

^{††}Includes users of cigarettes, cigars, pipes, chewing tobacco, or snuff.

Source: Centers for Disease Control and Prevention 1994c.

A 1996 survey of U.S. students aged 14–19 years found that white (28.9 percent) and Hispanic (26.2 percent) students were slightly more likely than African American students (19.3 percent) to report having smoked at least one cigar during the previous year. In

each racial/ethnic group, males were significantly more likely than females to have smoked at least one cigar during the previous year. Use among females ranged from 13.4 percent in African Americans to 20.0 percent among Hispanics. The prevalence of more

frequent cigar use did not differ by race/ethnicity; 3.6 percent of African Americans, 2.5 percent of Hispanics, and 2.3 percent of whites reported that they had smoked at least 50 cigars during the previous year (CDC 1997b).

Use of Smokeless Tobacco

American Indians and Alaska Natives were the most likely (4.5 percent) to use chewing tobacco or snuff, according to aggregated data from the 1987 and 1991 NHISs, whereas Asian Americans and Pacific Islanders (0.6 percent) as well as Hispanics (0.8 percent) were the least likely to use smokeless tobacco (Table 38).

Among all racial/ethnic groups except African Americans, men were much more likely than women to use chewing tobacco or snuff. Among African American women, the use of smokeless tobacco has been highest among those aged 65 years and older (CDC 1994c). These findings are consistent with those in published studies (Bauman et al. 1989; Novotny et al. 1989; Rouse 1989), although they differ somewhat from the 1985 CPS estimates for males aged 16 years and older; these estimates showed rates of reported snuff use among African Americans (0.7 percent) and whites (2.2 percent) that were significantly lower than the NHIS-based rates reported here (Marcus et al. 1989).

Conclusions

1. In 1978–1995, the prevalence of cigarette smoking declined among African American, Asian American and Pacific Islander, and Hispanic adults. However, among American Indians and Alaska Natives, current smoking prevalence did not change for men from 1983 to 1995 or for women from 1978 to 1995.
2. Tobacco use varies within and among racial/ethnic groups; among adults, American Indians and Alaska Natives have the highest prevalence of tobacco use; African American and Southeast Asian men also have a high prevalence of smoking. Asian American and Hispanic women have the lowest prevalence.
3. In all racial/ethnic groups discussed in this report except American Indians and Alaska Natives, men have a higher prevalence of cigarette smoking than women.
4. In all racial/ethnic groups except African Americans, men are more likely than women to use smokeless tobacco.
5. Cigarette smoking prevalence increased in the 1990s among African American and Hispanic adolescents after several years of substantial decline among adolescents of all four racial/ethnic minority groups. This increase is particularly striking among African American youths, who had the greatest decline of the four groups during the 1970s and 1980s.
6. Since 1978, the prevalence of cigarette smoking has remained strikingly high among American Indian and Alaska Native women of reproductive age and has not declined as it has among African American, Asian American and Pacific Islander, and Hispanic women of reproductive age.
7. Declines in smoking prevalence were greater among African American, Hispanic, and white men who were high school graduates than they were among those with less formal education. Among women in these three groups, education-related declines in cigarette smoking were less pronounced.
8. Educational attainment accounts for only some of the differences in smoking behaviors (current smoking, heavy smoking, ever smoking, and smoking cessation) between whites and the racial/ethnic minority groups discussed in this report. Other biological, social, and cultural factors are likely to further account for these differences.
9. Compared with whites who smoke, smokers in each of the four racial/ethnic minority groups smoke fewer cigarettes each day. Among smokers, African Americans, Asian Americans and Pacific Islanders, and Hispanics are more likely than whites to smoke occasionally (less than daily).
10. The data in general suggest that acculturation influences smoking patterns in that individuals tend to adopt the smoking behavior of the current broader community; however, the exact effects of acculturation on smoking behavior are difficult to quantify because of limitations on most available measures of this cultural learning process.

Appendix 1. Sources of Data

Most of the data reported in this chapter were collected through a number of large-scale surveys conducted by the federal government or private researchers. When data from one period were insufficient (e.g., because of small sample size) for estimating the prevalence of a risk factor or a behavior, they were combined with similar data for several periods, provided the prevalence under consideration had not changed rapidly over the periods being aggregated. This process, used in some of the NHIS and BRFSS analyses, increased the reliability and stability of prevalence estimates (CDC 1992e).

The data reported in this chapter are limited in several ways. For example, because some racial/ethnic groups were underrepresented in the data sources, the small number of responses may not be representative of the group as a whole. Moreover, most surveys have been conducted in English only, thus limiting the validity of the responses of individuals with limited proficiency in English, particularly among Asian Americans, Pacific Islanders, and Hispanics. In addition, some surveys have used telephone surveys (excluding persons who lack telephone service) or school surveys (excluding youths who dropped out of school or who were frequently absent from class); these surveys have thus excluded a number of respondents who may be at increased risk for cigarette smoking. Despite these limitations, the patterns described in this chapter are the first and largest effort to present a comprehensive perspective on cigarette use among members of racial/ethnic minority groups in the United States.

National Health Interview Survey (NHIS)

Since 1965, the CDC's NCHS has collected data on tobacco use through the NHIS, which uses a probability sample of noninstitutionalized adult civilians in the United States (NCHS 1975, 1985a, 1989). Some NHISs have excluded adults 18 and 19 years of age; however, this report uses data from surveys that have included respondents who were aged 18 years and older (i.e., 1978, 1979, 1980, 1983, 1985, 1987, 1988, 1990, 1991, 1992, 1993, 1994, and 1995). Most interviews were conducted in the home; when respondents could not be interviewed in person, telephone interviews were conducted. The overall NHIS response rate for

surveys on smoking has remained at least 85 percent (NCHS 1985a). Overall, sample sizes have ranged from 10,342 in 1980 to 86,332 in 1966. In this report, data have been adjusted for nonresponse and have been weighted to provide national estimates. Confidence intervals have been calculated by using standard errors generated by the Professional Software for Survey Data Analysis (SUDAAN) (Shah et al. 1991). Responses from various administrations of the NHIS have been aggregated to produce more stable results for Hispanics, Asian Americans and Pacific Islanders, and American Indians and Alaska Natives.

Hispanic Health and Nutrition Examination Survey (HHANES)

The NCHS conducted the HHANES from 1982 through 1984 to assess the health and nutritional status and needs of Cuban Americans, Mexican Americans, and mainland Puerto Ricans. No other equivalent source of recent data is available for Hispanics. This survey sampled Mexican Americans from Arizona, California, Colorado, New Mexico, and Texas; Cuban Americans from Dade County, Florida (Miami); and Puerto Ricans from New York, New Jersey, and Connecticut. Demographic and cigarette smoking information were collected from Hispanics aged 20–74 years. All interviews were conducted in the home or in a mobile examination center. NCHS estimates that the HHANES data represent approximately 76 percent of the 1980 Hispanic-origin population. All data in this report have been adjusted and weighted for the complex sample design, nonresponse bias, potential noncoverage bias, and regional nature of the sample (NCHS 1985b).

Behavioral Risk Factor Surveillance System (BRFSS)

The CDC's National Center for Chronic Disease Prevention and Health Promotion coordinates the state surveillance of behavioral risk factors through the BRFSS, initiated in 1981 (Gentry et al. 1985; Remington et al. 1988). Each state that participates in the BRFSS provides estimates of numerous risk behaviors for the state's population of persons aged 18 years and older.

States collect data through random digit-dialed telephone interviews. BRFSS sample sizes have ranged from 476 in Indiana in 1984 to 3,988 in California in 1992. Since 1991, at least 1,178 persons have been sampled in each state. In this report, the data have been weighted to reflect the age, race/ethnicity, and gender distribution of each participating state. Ninety-five percent confidence intervals have been calculated by using the Standard Errors Program for Computing of Standardized Rates from Sample Survey Data (SESUDAAN) (Shah 1981).

Adult Use of Tobacco Survey (AUTS)

Since 1964, the AUTS has been conducted periodically to determine rates of tobacco use as well as descriptive information on smoking patterns among representative samples of the U.S. population. Information gathered has included a history of individual use of any tobacco product as well as attitudes and beliefs about smoking-related issues. The AUTS was conducted in 1964, 1966, 1970, and 1975 by the USDHEW's National Clearinghouse for Smoking and Health, and the most recent survey was conducted in 1986 by the CDC's Office on Smoking and Health. In the 1986 AUTS, a computer-assisted telephone interview protocol (random-digit dialing) was used to survey 13,031 noninstitutionalized civilian U.S. adults (≥ 17 years of age). Population estimates were obtained by weighting the sample according to smoking status, age, race/ethnicity, gender, education, and geographic region (USDHHS 1990b).

Monitoring the Future (MTF) Surveys

Each spring since 1975, the University of Michigan's Institute for Social Research, with grants from NIDA, has surveyed nationally representative samples of high school seniors as part of the MTF. Sample sizes have ranged from 15,850 to 18,448. The data in this report have been weighted to provide national estimates. Analyses were conducted on data collected for 1976–1994. Data from subsequent years were obtained from published reports (e.g., Johnston et al. 1996) and from the University of Michigan's Institute for Social Research. Since 1991, data have been collected for eighth- and tenth-grade students. Some data from these surveys are cited in this report (Johnston et al. 1993b, 1995a, 1996).

Youth Risk Behavior Survey (YRBS)

The CDC developed the Youth Risk Behavior Surveillance System to measure six categories of priority health-risk behaviors, including tobacco use, among adolescents. Data were collected through national, state, and local school-based surveys of high school students, conducted during the spring of odd-numbered years, and a national household-based survey of youths aged 12–21 years, conducted during 1992 (Kolbe 1990; Kolbe et al. 1993; CDC 1996). Data from the 1991 and 1995 national school-based surveys and the 1992 national household survey are cited in this report (USDHHS 1994; CDC 1996; Lowry et al. 1996).

The national school-based YRBSs each used a three-stage cluster sample design to draw a nationally representative sample of ninth- to twelfth-grade students in public and private schools in all 50 states and the District of Columbia. Schools having a substantial proportion of African American and Hispanic students were oversampled. The questionnaire was administered in the classroom by trained data collectors. The data were weighted to provide national estimates.

The 1992 YRBS was a follow-back survey to the 1992 NHIS. The sample of young people aged 12–21 years was drawn from families who were interviewed for the 1992 NHIS. Participants responded in person. Respondents listened through a headset to an audio-cassette containing previously recorded questions. Respondents recorded their responses on answer sheets, which were returned to the interviewers in sealed envelopes. The data were weighted to provide national estimates.

Teenage Attitudes and Practices Survey (TAPS)

In 1989 and 1993, the U.S. Public Health Service conducted the TAPS to collect data on knowledge, attitudes, and practices regarding tobacco use from a national household sample of adolescents (aged 12–18 years) through telephone interviews. The 1993 TAPS included a longitudinal component (TAPS-II) in which 7,960 (87.1 percent) of the 9,135 respondents to the 1989 TAPS were reinterviewed; these respondents were 15–22 years of age during TAPS-II. TAPS-II also included 4,992 persons from a new probability sample. In this report, data on 9,135 TAPS respondents and 7,311 TAPS-II respondents have been analyzed. Data have been weighted to provide national estimates, and confidence intervals have been calculated by using the standard errors generated by the SUDAAN (Shah et al. 1991).

Appendix 2. Measures of Tobacco Use

Several measures of tobacco use among members of racial/ethnic groups can be derived from state and national surveys and other data sources. The most common measures include cigarette smoking and cessation; the number of cigarettes smoked daily; and the use of cigars, pipes, and smokeless tobacco.

Cigarette Smoking and Cessation

The NHIS gathers information on a range of cigarette smoking behaviors, using some of the following terms and measurements:

- For 1978–1991, *current smokers* are defined as those who have smoked 100 or more cigarettes in their lifetime and who report at the time of survey that they currently smoke. For 1992–1995, current smokers are defined as those who have smoked at least 100 cigarettes in their lives and who report at the time of survey that they currently smoke every day or on some days.
- *Former smokers* are those who have smoked 100 or more cigarettes in their lifetime and who do not currently smoke.
- *Never smokers* are those who have smoked fewer than 100 cigarettes in their lifetime.
- *Ever smokers* consist of current smokers and former smokers.
- The *prevalence of cessation* (or quit ratio) is defined as the percentage of ever smokers who are former smokers (Fiore et al. 1989; USDHHS 1989, 1990a).

NHIS data on age at initiation of regular smoking and on duration of abstinence for former smokers have been used to reconstruct the prevalence of cigarette smoking for the decades in this century before systematic surveillance of cigarette smoking was conducted (NCI 1991). Information such as the respondent's date of birth, age at initiation of smoking, and age at cessation for former smokers can be used to assess the smoking status of a respondent for any given year. Similar analyses have been reported in previous Surgeon General's reports (USDHHS 1980, 1985) and in the literature (Harris 1983; Escobedo and Remington 1989; Pierce et al. 1991b).

The BRFSS has routinely reported estimates of "regular" cigarette smoking. Current regular smokers are defined as those (1) who report that they have

smoked ≥ 100 cigarettes and that they currently smoke and (2) who do not respond that they are occasional smokers when asked to report the average number of cigarettes they smoke daily. The use of a measure of current regular smoking generally results in median prevalence estimates that are about 0.7 to 1.0 percentage points lower than those estimates that include current occasional smokers (CDC 1994c). The BRFSS defines and calculates the prevalence of smoking cessation in the same manner as is done in the NHIS.

In the MTF surveys, current cigarette use patterns are defined as any use of cigarettes within the 30 days preceding the survey. This same definition was used for current alcohol, marijuana, cocaine, and any other illicit drug use.

Number of Cigarettes Smoked Daily

Cigarette consumption traditionally has been reported in three categories: (1) smoking fewer than 15 cigarettes per day, (2) smoking between 15 and 24 cigarettes per day, and (3) smoking 25 or more cigarettes per day. In the NHISs and the BRFSS surveys, respondents were asked to report the actual number of cigarettes smoked per day.

In the 1978–1991 NHISs, cigarette consumption was defined as the average number of cigarettes that current smokers reported smoking each day. Starting in 1992, however, current smokers who reported that they smoked only on some days were asked to report the number of days out of the past 30 days that they smoked any cigarettes and the average number of cigarettes they smoked on the days that they smoked.

The MTF survey asks respondents how frequently they have smoked during the previous 30 days. Possible responses are "not at all," "less than one cigarette per day," "one to five cigarettes per day," "about one-half pack per day," "about one pack per day," "about one and one-half packs per day," and "two packs or more per day."

Use of Cigars, Pipes, and Smokeless Tobacco

The 1987 and 1991 NHISs defined current cigar smokers as those who had smoked 50 or more cigars in their lifetime and who were current cigar smokers, and they defined current pipe smokers as those who had smoked 50 or more pipes full of tobacco and who

were current pipe smokers. Current snuff users were defined as those who had used snuff 20 or more times and were currently snuff users. The same logic was used to classify chewing tobacco users.

In the BRFSS surveys, smokeless tobacco users were defined as those who said that they had ever used smokeless tobacco (such as chewing tobacco or snuff) and who were current users of any smokeless tobacco products.

Appendix 3. Patterns of Cigarette Use Among Whites

Table 39. Percentage of white adults who reported being current cigarette smokers,* overall and by gender, age, and education, National Health Interview Surveys, United States, 1965–1995

Characteristic	1965		1966		1970		1974	
	%	±CI [‡]	%	±CI	%	±CI	%	±CI
Total	42.1	0.6	42.4	0.5	37.0	0.7	36.4	0.8
Gender								
Men	51.1	0.8	51.8	0.8	43.2	0.8	41.9	1.0
Women	34.0	0.7	33.9	0.7	31.6	1.0	31.7	1.1
Age (years)								
18–34	48.6	1.0	48.3	0.9	41.3	1.0	40.7	1.6
35–54	48.5	0.9	48.7	0.9	42.8	0.9	41.9	1.1
≥55	26.3	0.9	27.4	0.9	25.1	0.9	24.9	1.1
Education[§]								
Less than high school	NA	NA	41.3	0.9	37.1	1.0	36.9	1.3
High school	41.9 ^Δ	0.7	44.3	1.0	39.0	0.9	38.1	1.3
Some college	NA	NA	44.4	1.8	38.5	1.4	37.9	2.0
College	40.4 ^Δ	1.3	35.2	1.8	28.6	1.5	28.2	1.7
Characteristic	1985		1987		1988		1990	
	%	±CI	%	±CI	%	±CI	%	±CI
Total	29.9	0.7	29.0	0.7	28.2	0.6	25.9	0.6
Gender								
Men	31.8	1.0	30.6	0.9	30.3	0.9	27.8	0.9
Women	28.2	0.9	27.5	0.8	26.3	0.7	24.1	0.8
Age (years)								
18–34	33.6	1.2	32.2	1.1	31.9	1.1	29.7	1.0
35–54	33.7	1.2	33.7	1.0	32.1	1.0	29.9	1.0
≥55	21.5	1.0	20.2	0.9	19.7	0.8	16.8	0.8
Education[§]								
Less than high school	33.7	1.6	34.8	1.6	33.7	1.3	32.0	1.5
High school	33.1	1.2	32.6	1.1	32.6	1.0	30.0	1.0
Some college	30.3	1.6	28.5	1.3	27.8	1.3	24.9	1.2
College	18.3	1.2	16.9	1.0	16.2	1.0	13.7	0.9

*Data collected before 1978 do not distinguish between whites of Hispanic origin and non-Hispanic whites; these data exclude those whites who indicated they were of Hispanic origin. For 1978–1991, current cigarette smokers include persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked. For 1992–1995, current smokers include persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked every day or on some days.

1976 [†]		1977 [†]		1978		1979		1980		1983	
%	±CI	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
35.9	0.7	35.0	0.7	34.0	1.2	33.4	0.8	33.0	1.1	32.3	0.7
40.7	1.1	39.0	1.0	37.3	1.9	36.6	1.0	36.5	1.6	34.6	1.1
31.9	1.0	31.8	1.1	31.1	1.3	30.6	1.0	29.8	1.5	30.2	0.9
40.0	1.2	38.9	1.5	37.0	1.8	37.3	1.3	35.2	1.8	36.0	1.2
41.2	1.4	41.1	1.1	40.5	2.0	38.4	1.3	38.8	2.0	37.4	1.3
25.0	1.1	25.1	1.1	23.6	1.7	23.6	0.9	24.3	1.6	22.5	1.1
36.6	1.5	35.7	1.3	35.6	2.2	35.1	1.5	35.5	2.0	35.3	1.6
37.6	1.4	37.8	1.4	37.0	1.9	35.3	1.3	34.9	2.0	34.8	1.3
37.6	2.1	37.0	1.8	34.1	3.1	35.7	1.8	33.9	3.1	32.8	1.9
27.2	1.7	25.9	1.7	23.8	2.6	23.2	1.6	24.4	2.3	20.1	1.5
1991		1992		1993		1994		1995			
%	±CI	%	±CI	%	±CI	%	±CI	%	±CI		
26.0	0.6	27.2	0.8	25.4	0.8	25.5	0.7	25.6	1.0		
27.5	0.9	28.6	1.2	27.0	1.2	28.2	1.1	27.1	1.5		
24.6	0.7	25.9	1.1	24.0	1.0	23.1	0.9	24.1	1.3		
29.8	1.0	32.8	1.5	30.1	1.4	29.3	1.4	29.7	1.8		
30.0	1.0	30.1	1.3	29.3	1.4	28.9	1.2	28.3	1.6		
17.3	0.8	17.5	1.2	15.8	1.1	16.2	1.1	17.8	1.3		
33.3	1.5	32.0	2.0	31.8	2.6	31.9	1.8	33.3	2.6		
30.6	0.9	31.9	1.4	29.1	1.3	29.8	1.3	30.2	1.7		
24.9	1.2	25.9	1.7	24.9	1.7	25.7	1.7	24.1	1.9		
13.8	0.9	14.8	1.3	13.5	1.3	12.3	1.1	14.0	1.6		

[†]The 1976 and 1977 surveys collected data only for persons aged 20 years and older. The data for 1976 and 1977 were statistically adjusted to produce estimates for the total population, males, and females that approximate those for whites aged 18 years and older. Estimates for persons in the 18–34 year old age category were statistically adjusted to produce estimates that approximate those for whites aged 18–34 years.

[‡]95% confidence interval.

[§]Includes persons aged 25 years and older.

^ΔLevels presented for 1965 are for persons who had a high school education or less and persons who attended some college or were college graduates.

NA = data not available.

Source: National Center for Health Statistics, public use data tapes, 1965–1995.

Table 40. Percentage of adult white smokers* who reported smoking <15, 15–24, and ≥25 cigarettes per day, overall and by gender, age, and education, National Health Interview Surveys, United States, 1965–1995

Characteristic	1965		1966		1970		1974	
	%	±CI†	%	±CI	%	±CI	%	±CI
Total								
<15 cigarettes	33.1	1.1	31.7	0.8	29.7	0.9	27.7	1.2
15–24 cigarettes	45.3	0.8	45.9	0.9	45.0	0.9	44.7	1.2
≥25 cigarettes	21.6	0.7	22.4	0.7	25.4	0.9	27.6	1.1
Gender								
Men								
<15 cigarettes	26.6	1.0	25.8	1.0	24.4	1.2	21.5	1.6
15–24 cigarettes	46.7	1.1	47.2	1.2	45.2	1.2	44.5	1.9
≥25 cigarettes	26.7	0.9	27.0	1.0	30.4	1.2	34.1	1.7
Women								
<15 cigarettes	41.8	1.3	39.5	1.2	35.9	1.1	34.5	1.7
15–24 cigarettes	43.4	1.3	44.3	1.3	44.7	1.1	45.0	1.6
≥25 cigarettes	14.8	0.9	16.2	1.0	19.4	0.9	20.5	1.2
Age (years)								
18–34								
<15 cigarettes	34.7	1.4	33.9	1.3	31.6	1.2	30.9	1.8
15–24 cigarettes	47.4	1.5	48.2	1.3	46.9	1.2	46.3	1.8
≥25 cigarettes	17.9	1.1	17.9	1.0	21.6	1.2	22.8	1.6
35–54								
<15 cigarettes	29.0	1.1	26.7	1.1	24.7	1.1	21.4	1.6
15–24 cigarettes	45.1	1.2	45.5	1.3	44.2	1.2	42.9	1.8
≥25 cigarettes	28.0	1.2	27.8	1.1	31.1	1.1	35.7	1.7
≥55								
<15 cigarettes	40.1	1.9	38.8	1.9	36.3	1.6	32.7	2.4
15–24 cigarettes	41.5	1.9	42.2	1.9	42.7	1.4	44.7	2.4
≥25 cigarettes	18.4	1.5	18.8	1.5	21.1	1.5	22.7	2.3
Education§								
Less than high school								
<15 cigarettes	NA	NA	30.7	1.3	28.6	1.5	25.7	2.0
15–24 cigarettes	NA	NA	45.8	1.3	44.3	1.2	45.1	2.1
≥25 cigarettes	NA	NA	23.5	1.2	27.0	1.4	29.2	1.8
High school								
<15 cigarettes	31.1 ^Δ	1.0	28.5	1.4	26.2	1.4	25.7	2.0
15–24 cigarettes	45.9 ^Δ	1.1	46.9	1.7	47.3	1.4	44.7	2.3
≥25 cigarettes	23.0 ^Δ	0.9	24.6	1.4	26.5	1.3	29.6	1.9
Some college								
<15 cigarettes	NA	NA	29.4	2.7	27.1	2.4	23.1	3.1
15–24 cigarettes	NA	NA	44.6	3.0	43.1	2.8	42.7	3.3
≥25 cigarettes	NA	NA	26.0	2.6	29.8	2.2	34.2	2.6
College								
<15 cigarettes	33.2 ^Δ	2.0	35.0	3.1	31.7	2.1	27.9	3.9
15–24 cigarettes	42.3 ^Δ	2.2	39.2	3.2	40.2	2.8	43.0	3.8
≥25 cigarettes	24.5 ^Δ	2.0	25.9	2.8	28.1	3.1	29.1	3.4

*Data collected before 1978 do not distinguish between whites of Hispanic origin and non-Hispanic whites; these data exclude those whites who indicated they were of Hispanic origin. For 1965–1991, current cigarette smokers include persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked. For 1992–1995, current smokers include persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked every day or on some days.

NA = data not available.

Source: National Center for Health Statistics, public use data tapes, 1965–1995.

1976 [†]		1977 [†]		1978		1979		1980		1983	
%	±CI	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
27.8	1.2	26.9	1.2	23.7	1.5	24.4	1.0	23.2	1.6	23.8	1.2
45.2	1.3	43.6	1.4	44.7	1.7	44.7	1.3	44.6	1.9	46.8	1.4
27.0	1.2	27.5	1.4	31.6	1.6	30.9	1.2	32.2	1.9	29.4	1.3
22.0	1.6	20.5	1.3	17.8	1.9	20.0	1.2	17.7	2.2	17.8	1.5
45.2	1.6	41.6	1.7	43.6	2.5	43.1	1.7	44.3	2.7	45.1	2.0
32.8	1.7	33.5	1.8	38.6	2.3	36.9	1.7	38.0	2.7	37.1	1.6
34.0	1.7	33.7	1.6	30.1	2.4	29.2	1.6	29.3	2.1	30.1	1.7
45.1	1.8	45.8	1.9	45.8	2.3	46.5	1.9	44.8	2.6	48.4	1.9
21.0	1.5	21.0	1.6	24.1	2.3	24.4	1.5	25.9	2.3	21.5	1.6
30.0	1.8	29.9	1.7	25.2	2.2	26.5	1.7	25.2	2.7	27.5	1.9
47.3	1.9	45.9	1.9	47.8	2.6	47.4	1.8	48.0	2.9	49.9	2.0
22.6	1.9	21.9	2.1	27.0	2.7	26.1	1.5	26.9	2.6	22.7	1.7
22.7	1.7	21.2	1.8	19.0	2.3	19.2	1.5	17.6	2.6	18.0	1.7
43.3	2.0	42.6	2.0	41.5	2.7	41.8	2.2	40.5	2.9	42.6	2.2
34.0	1.8	36.3	2.0	39.5	2.4	39.0	2.2	41.9	3.4	39.4	2.2
32.0	2.5	31.6	2.6	28.9	3.6	28.8	2.6	28.7	3.2	26.0	2.5
43.8	2.7	42.9	2.9	43.9	4.1	44.1	3.0	44.7	3.7	47.3	2.9
24.2	2.3	25.6	2.5	27.2	3.7	27.2	2.5	26.6	3.3	26.7	2.5
26.7	1.9	26.2	2.1	23.3	2.9	23.1	2.0	21.2	3.0	20.4	2.2
44.5	2.2	43.3	2.7	44.1	3.3	44.0	2.6	44.9	3.7	45.4	2.9
28.8	2.2	30.5	2.3	32.7	2.4	32.9	2.2	33.9	3.6	34.3	2.7
24.2	1.8	22.7	1.7	22.4	2.5	20.5	1.7	21.0	2.7	21.3	1.8
46.3	2.3	45.6	2.1	43.8	2.7	46.0	2.3	44.6	3.5	46.0	2.3
29.5	2.2	31.7	2.1	33.8	2.9	33.5	2.1	34.4	3.4	32.7	2.2
26.2	3.6	27.8	3.2	18.9	3.2	22.0	3.0	18.0	4.2	21.2	2.9
41.8	3.4	41.4	3.6	44.2	5.7	42.1	3.2	45.9	5.5	46.3	3.6
32.0	3.4	30.8	3.1	37.0	5.5	35.9	3.0	36.0	4.7	32.5	3.4
30.4	3.7	30.4	3.1	25.8	5.2	29.6	3.7	27.7	5.0	28.4	3.8
41.2	4.4	40.2	3.8	41.1	5.9	37.2	3.9	35.2	5.4	40.9	4.2
28.4	3.3	29.4	3.7	33.2	4.7	33.2	3.6	37.1	5.7	30.7	4.2

[†]The 1976 and 1977 surveys collected data only for persons aged 20 years and older. The data for 1976 and 1977 were statistically adjusted to produce estimates for the total population, males, and females that approximate those for whites aged 18 years and older. Estimates for persons in the 18–34 year old age category were statistically adjusted to produce estimates that approximate those for whites aged 18–34 years.

[‡]95% confidence interval.

[§]Includes persons aged 25 years and older.

^ΔLevels presented for 1965 are for persons who had a high school education or less and persons who attended some college or were college graduates.

Table 40. Continued

Characteristic	1985		1987		1988		1990	
	%	±CI†	%	±CI	%	±CI	%	±CI
Total								
<15 cigarettes	26.1	1.1	25.4	1.0	24.7	1.0	27.9	1.1
15–24 cigarettes	43.6	1.3	43.7	1.1	45.7	1.1	45.2	1.2
≥25 cigarettes	30.3	1.2	30.9	1.1	29.6	1.0	26.9	1.2
Gender								
Men								
<15 cigarettes	20.1	1.6	20.6	1.4	20.4	1.3	21.7	1.4
15–24 cigarettes	42.6	1.9	40.6	1.6	43.9	1.6	43.9	1.8
≥25 cigarettes	37.3	1.8	38.8	1.6	35.7	1.6	34.5	1.9
Women								
<15 cigarettes	32.1	1.6	30.3	1.5	29.3	1.5	34.5	1.6
15–24 cigarettes	44.7	1.7	46.9	1.6	47.5	1.6	46.6	1.6
≥25 cigarettes	23.2	1.4	22.8	1.4	23.3	1.2	19.0	1.4
Age (years)								
18–34								
<15 cigarettes	31.1	1.9	29.8	1.7	29.3	1.7	34.9	1.9
15–24 cigarettes	45.2	2.0	45.6	1.8	47.7	1.8	47.3	1.9
≥25 cigarettes	23.8	1.7	24.6	1.5	22.9	1.5	17.8	1.6
35–54								
<15 cigarettes	19.0	1.7	20.1	1.6	18.1	1.5	20.4	1.6
15–24 cigarettes	41.1	2.1	41.3	1.8	43.7	1.8	43.4	2.0
≥25 cigarettes	39.9	2.1	38.6	1.5	38.3	1.8	36.2	2.0
≥55								
<15 cigarettes	27.7	2.4	26.3	1.6	27.7	2.0	29.1	2.5
15–24 cigarettes	44.7	2.6	44.6	1.8	45.0	2.2	44.5	2.5
≥25 cigarettes	27.6	2.3	29.2	1.9	27.2	2.1	26.4	2.3
Education[§]								
Less than high school								
<15 cigarettes	19.5	2.2	19.9	2.1	19.1	1.8	19.5	2.2
15–24 cigarettes	44.3	2.7	44.2	2.4	44.5	2.4	48.6	2.9
≥25 cigarettes	36.2	2.7	35.8	2.4	36.5	2.4	31.9	2.7
High school								
<15 cigarettes	23.1	1.8	22.8	1.5	20.5	1.4	24.5	1.7
15–24 cigarettes	44.5	2.1	43.4	1.8	47.7	1.8	45.8	1.9
≥25 cigarettes	32.4	1.9	33.8	1.8	31.8	1.6	29.6	1.8
Some college								
<15 cigarettes	26.3	2.8	24.9	2.3	25.6	2.3	27.8	2.6
15–24 cigarettes	42.0	3.1	43.0	2.8	43.2	2.7	43.5	3.1
≥25 cigarettes	31.7	2.9	32.2	2.7	32.2	2.4	28.7	2.8
College								
<15 cigarettes	30.5	3.4	31.0	3.1	32.4	2.9	35.1	3.3
15–24 cigarettes	37.9	3.7	39.9	3.4	39.5	3.2	39.6	3.4
≥25 cigarettes	31.6	3.6	29.2	3.0	28.1	2.9	25.3	3.3

†95% confidence interval.

§Includes persons aged 25 years and older.